

## **REMARKS**

Entry of the foregoing and reexamination and reconsideration of the subject application, as amended, pursuant to and consistent with 37 C.F.R. § 112, are respectfully requested in light of the following remarks.

The following remarks are offered in complete response to the Office Action dated April 18, 2007. In light of these remarks, reconsideration of the rejections and examination of all of the claimed subject matter on the merits are respectfully requested.

Claim 1 has been amended to incorporate the definition of X from claim 2, which has been cancelled and to remove polyhalogenated aryl radicals from the definition of Rf. Claims 3, 5, 6, 10, 16, 17, 19-22, 24, 26, 28 and 40 have been amended to depend from claim 1, rather than from cancelled claim 2, which was incorporated into claim 1.

Claim 2 has been cancelled in this amendment. Claim 34 was cancelled in a previous amendment.

Claims 1, 3-33 and 35-44 are pending in this application.

### **35 U.S.C. §112 second paragraph**

Claims 3, 5, 6 and 19 have been rejected under 35 U.S.C. §112, second paragraph, as purportedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 5 and 6 were rejected as being indefinite because they depended from two claims. Amended claims 3, 5 and 6 do not depend from two claims and therefore are not indefinite.

Claim 19 is alleged to be indefinite because it was not clear to the Examiner what reagents are reacting. Step a in amended claim 19 comprises reacting a compound as defined in claim 1 wherein  $Z_5$  is a hydrogen atom and a compound  $Z_5$ -Y, in which  $Z_5$  is as defined in claim 1 and Y refers to a leaving group. Amended claim 19 defines the reagents that are reacting.

Applicants respectfully submit that the amended claims are not indefinite and the rejection should be withdrawn.

**35 U.S.C. §102(b) prior art rejections**

It is well established that in order to demonstrate anticipation over 35 U.S.C. § 102, each feature of the claim at issue must be found, either expressly described or under principles of inherency, in a single prior art reference. See, *Kalman v. Kimberly-Clark Corp.*, 218 USPQ 789 (Fed. Cir. 1983).

Claims 1, 7, 8, 14 and 15 have been rejected under 35 U.S.C. §102(a) as being anticipated by Bertrand et al., A Xanthate Transfer Radical Process for the Introduction of the Trifluoromethyl Group, *Org. Letters*, 2001, 3(7), 1069-1071.

Bertrand et al. disclose a compound, 4i, which corresponds to a compound of formula (I) where X is  $\text{SO}_2\text{Ph}$ ,  $Z_4$  is a hydrogen atom,  $R_f$  is a fluoroalkyl group ( $\text{CF}_3\text{-CH}_2\text{-}$ ) and  $Z_1$  is the group  $\text{OR}_a$ , where  $R_a$  is arylalkyl ( $\text{PhCH}_2\text{CH}_2\text{O-}$ ).

The compounds of the instant invention are distinct from those of Bertrand et al. because the substituent X in the instant application (X represents a  $-NZ_2Z_3$ ,  $-OZ_5$  group or a halogen atom (Hal) selected from Cl, Br and I) is different than substituent X in the referenced compound of Bertrand et al. (X is  $SO_2Ph$ ).

Applicants respectfully submit that the claims are not anticipated by Bertrand et al. and the rejection should be withdrawn.

Claims 1, 2, 6, 7, 8, 14 and 16 have been rejected under 35 U.S.C. §102(b) as being anticipated by Hilton et al., Phytotoxicity of Herbicides as measured by root absorption, Weed Research, 1964, 4(3), 216-22.

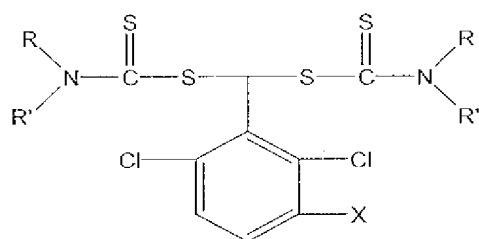
Hilton et al. disclose a compound which corresponds to a compound of formula (I) where X is Cl,  $Z_4$  is a hydrogen atom,  $R_f$  is a poly-halogenated aryl radical (dichlorophenyl) and  $Z_1$  is the group  $NR^iR^j$  with  $R^i = R^j =$  an alkyl group (isopropyl).

The compounds of the instant invention are distinct from those of Hilton et al. because the substituent  $R_f$  in the amended claims is not a poly-halogenated aryl radical while  $R_f$  in Hilton et al. is a poly-halogenated aryl radical (dichlorophenyl).

Applicants respectfully submit that the claims are not anticipated by Hilton et al. and the rejection should be withdrawn.

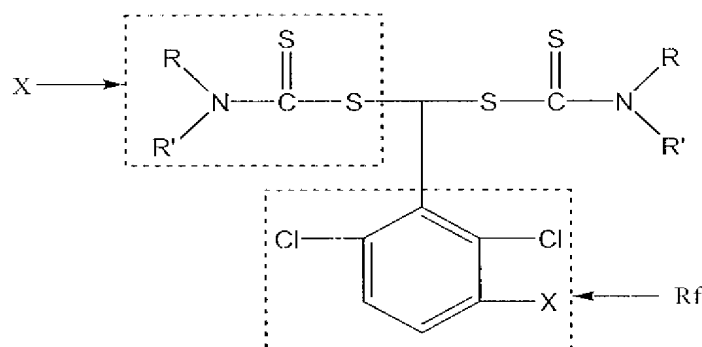
Claims 1 and 8 have been rejected under 35 U.S.C. §102(b) as being anticipated by Gradsten et al., US 3,266,882.

Gradsten et al. teach a compound of general formula:



where R and R' are alkyl groups having from 1 to 4 carbon atoms and X is hydrogen or chlorine. Gradsten et al. disclose in example 1 a compound which corresponds to a compound of formula (I) of applicants' invention where X is  $S-(C=S)-N(CH_3)_2$ ,  $Z_4$  is a hydrogen atom,  $R_f$  is a polyhalogenated aryl group (dichlorophenyl) and  $Z_1$  is the group  $NR^iR^j$  with  $R^i = R^j =$  an alkyl group (methyl).

The compounds of the instant invention are distinct from those of Gradsten et al. because the substituents X and  $R_f$  in the amended claims are both different from those of Gradsten et al. In the instant application X represents  $-NZ_2Z_3$ ,  $-OZ_5$  or a halogen atom, while in Gradsten et al. X is  $S-(C=S)-N(CH_3)_2$ . In the instant application  $R_f$  represents (i) a halogen atom; (ii) a fluoroalkyl; (iii) a per-halogenated aryl radical, or (iv) a radical selected from  $R_A-CF_2^-$ ,  $R_A-CF_2-CF_2^-$ ,  $R_A-CF_2-CF(CF_3)-$ ,  $CF_3-C(R_A)F-$  and  $(CF_3)R_A-$ , with  $R_A$  selected from an alkyl, acyl, aryl, aralkyl, alkene and alkyne group, cyclic hydrocarbons and heterocycles, while in Gradsten et al.,  $R_f$  is a polyhalogenated aryl group (dichlorophenyl).



Applicants respectfully submit that the claims are not anticipated by Gradsten et al. and the rejection should be withdrawn.

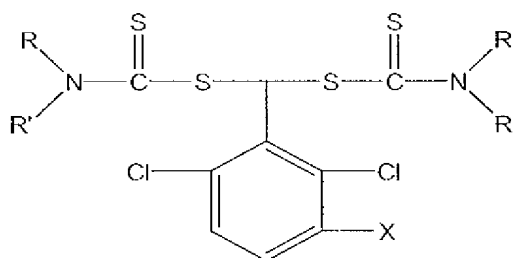
**35 U.S.C. §103(a) prior art rejections**

Claims 1, 2, 7, 8 and 10 have been rejected under 35 U.S.C. §103(a) as unpatentable over Gradsten et al. (US 3,266,882).

Applicants respectfully submit that claims 1, 2, 7, 8 and 10 are not obvious over Gradsten et al. and these claims are allowable.

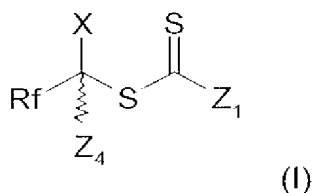
To establish a *prima facie* case of obviousness, three basic criteria must be met. (MPEP 2143) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Gradsten et al. teach a compound of general formula:



where R and R' are alkyl groups having from 1 to 4 carbon atoms and X is hydrogen or chlorine.

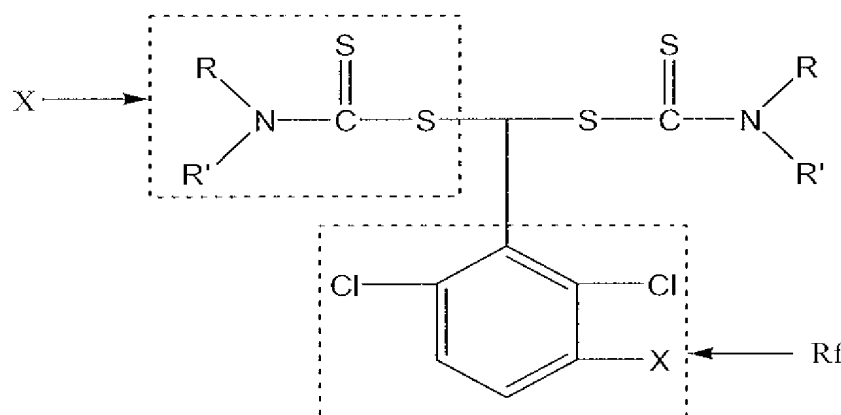
The compounds of the applicants' invention have the general formula (I)



where  $Z_1$ ,  $Z_4$ , X, and Rf are defined in the claims.

The compounds of the instant invention are distinct from those of Gradsten et al. because the substituents X and Rf in the amended claims are both different from those of Gradsten et al. In the instant application X represents  $-NZ_2Z_3$ ,  $-OZ_5$  or a halogen atom, while in Gradsten et al. X is  $S-(C=S)-N(CH_3)_2$ . In the instant application Rf represents (i) a halogen atom; (ii) a fluoroalkyl; (iii) a per-halogenated aryl radical, or (iv) a radical selected from  $R_A-CF_2^-$ ,  $R_A-CF_2-CF_2^-$ ,  $R_A-CF_2-CF(CF_3)-$ ,  $CF_3-C(R_A)F-$  and  $(CF_3)R_A-$ , with  $R_A$  selected from an alkyl, acyl, aryl, aralkyl, alkene and alkyne group, cyclic hydrocarbons and heterocycles, while in Gradsten et al., Rf is a polyhalogenated aryl group (dichlorophenyl).

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. There is no suggestion or motivation in Gradsten et al. to change two of the four substituents (X and Rf) to obtain the applicants' invention. As shown below, such changes would alter the fundamental nature of the compounds of Gradsten et al.



Replacement of the dithiocarbamoic acid (X) of Gradsten et al. with  $-NZ_2Z_3$ ,  $-OZ_5$  or a halogen atom fundamentally changes the nature of the compound by both destroying the symmetry of the structure and by having different substituents that have totally different properties. Similarly replacement of the dichlorophenyl group of Gradsten et al. with any of the following groups:

- (i) a halogen atom;
- (ii) a fluoroalkyl;
- (iii) a per-halogenated aryl radical, or
- (iv) a radical selected from  $R_A-CF_2-$ ,  $R_A-CF_2-CF_2-$ ,  $R_A-CF_2-CF(CF_3)-$ ,  $CF_3-$ ,  $C(R_A)F-$  and  $(CF_3)R_A-$ , with  $R_A$  selected from an alkyl, acyl, aryl, aralkyl, alkene and alkyne group, cyclic hydrocarbons and heterocycles

would change the fundamental nature of the compound. There is nothing in Gradsten et al. that would suggest to one skilled in the art at the time of the invention to make substantial modifications to the compounds of Gradsten et al. to obtain the applicants' invention, especially when the modified compounds are only remotely related to the compounds of Gradsten et al.

To establish a *prima facie* case of obviousness, there must be a reasonable expectation of success. There is no reasonable expectation of success based on

the teachings in Gradsten et al. to obtain the compounds of the instant claims based on the teachings of Gradsten et al. One of ordinary skill in the art at the time of the invention would not have been motivated to make the substantial changes required to obtain the compounds of the applicants' invention from the compounds of Gradsten et al. Such modifications in the structure of the compounds of Gradsten et al. are not merely modifying the variables. It is only through hindsight reconstruction, which is not permitted, that one of ordinary skill in the art would obtain the compounds of the applicants' invention from the compounds of Gradsten et al. Therefore, there was no reasonable expectation of success at the time of the invention in obtaining the compounds of the applicants' invention from the compounds of Gradsten et al.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. As was shown above, the compounds of the instant invention are distinct from those of Gradsten et al. because the substituents X and R<sub>f</sub> in the amended claims are both different from those of Gradsten et al. Therefore, the prior art reference does not teach or suggest all the claim limitations.

Applicants respectfully submit that the claims are not obvious over Gradsten et al. and the rejection should be withdrawn.

From the foregoing, Applicants earnestly solicit further and favorable action in the form of a Notice of Allowance.



If there are any questions concerning this paper or the application in general,  
Applicants invite the Examiner to telephone the undersigned at the Examiner's  
earliest convenience.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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